

rejections before amending the claims to present the subject matter of claim 15 in independent form as suggested by the Examiner.

Rejections of Formality

The Examiner rejected claims 1-5 and 15-17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which applicant regards as the invention. More specifically, the Examiner stated that in claim 1, it is unclear what is meant by "the plastic of said plastic panel at least partially envelops said barbs" In response, Applicants have amended the claim to eliminate particular reference to plastic apart from the plastic panel, reciting instead that "the plastic panel at least partially envelops said barbs" Applicants submit that this language avoids any confusion whether plastic is a separate part of said plastic panel.

The Examiner also rejected claim 15, finding the recitation that energy is imparted to the plastic unclear. Additionally, with respect to claims 16 through 17, the Examiner stated that the term "energy" lacked sufficient antecedent basis. Finally, the Examiner stated that claims 16 through 17 recite a process step rather than a structural limitation and, as such, would not be given any weight with respect to the claimed invention's patentability. In response, Applicants submit that the Examiner's rejection with respect to claims 15 through 17 is rendered moot by the cancellation of the claims. As stated in the previous reply dated January 9, 2002, Applicants want to introduce product-by-process limitations in the claimed subject matter. The Examiner, however, has rejected Applicants' attempts to do so in the

previous format. Therefore, Applicants submit herewith new claims 18 through 22 which present product-by-process claims in a more traditional claim format. Applicants trust the Examiner will find this format acceptable. Support for these claims can be found in originally-submitted claims 6-10.

Prior Art Rejections

The Examiner rejected claims 1-4 and 16-17 under 35 U.S.C. §103(a) as being unpatentable over Fun *et al.* (U.S. Patent No. 6,166,913) in view of Zurek *et al.* (U.S. Patent No. 4,912,602). Specifically, the Examiner stated that Fun *et al.* disclosed an IO card capable of being a PCMCIA card comprising all the elements of claim 1 except for a top panel made of plastic. The Examiner stated, however, that Zurek *et al.* shows a top panel made of plastic having a plurality of cavities (223-228 in Figure 5, column 3 lines 7 through 14). The Examiner concluded that it would have been obvious to use a top panel made of plastic as taught by Zurek *et al.* to modify the card of Fun *et al.* in order to provide a mechanically shock-resistant, light weight package and to reduce costs of manufacture. In response, Applicants respectfully submit that the claimed invention is patentability distinct over Fun *et al.* and Zurek *et al.*.

Claimed Invention

The present invention provides for a card having a configuration that facilitates the use of aesthetically-pleasing plastic materials for a portion of the cover while avoiding the problems in conventional metal-to-plastic construction. To this end, the plastic panel and

the conductive metal panel are configured to interconnect by flowing the plastic around anchor structures of the metal panel. More specifically, the conductive panel is configured with tabs having barbs thereon and the plastic panel is configured with cavities to receive the barbs. Once the barbs are received within the cavities, sufficient energy is applied to the plastic around the cavity to cause the plastic to flow around the bars, thereby anchoring the tabs in the plastic panel and preventing the separation of the plastic and metal panels. (Appl. p. 3, ll. 14-23.)

Accordingly, the claimed invention is directed to a card comprising: (a) a circuit board; (b) a connector electrically connected to the circuit board and adapted for electrically connecting the circuit board to a host computer; and (c) a housing having the circuit board mounted therein and configured to provide access to the connector, the housing comprising a metal panel interconnected to a plastic panel, the metal panel comprising a plurality of tabs with barbs thereon, the plastic panel having one or more cavities receiving the tabs, wherein the plastic panel at least partially envelopes the barbs of the tabs to prevent withdrawal of the tabs from the one or more cavities and thereby interconnect the plastic and metal panels. (Claim 1.)

The claimed invention is also directed to a card manufactured by the process comprising: (a) placing a circuit board within a plastic panel and a metal panel, the metal panel having a plurality of tabs with barbs, the plastic panel having one or more cavities adapted for receiving the tabs; (b) inserting the tabs within the one or more cavities; and (c)

transmitting energy to the plastic around the tab such that the plastic flows at least partially around the barbs. (Claim 18.)

Prior Art References

Fun *et al.* relates to a casing for enclosing a circuit board such as a printed circuit board and having two halves. Each half has symmetrical retaining means and receiving means interlocked together for sealing along the parameter between the upper and lower halves. The two halves are stamped from sheet metal and have basically a rectangular shape. (Col. 2, ll. 17-18.) The halves are made from a metal sheet to provide shielding from electromagnetic interference (EMI). (Col. 1, ll. 22-24). During assembly, the clipping tabs 26 of one half are inserted into the corresponding retaining receptacle 27 of the other half and are anchored into the retaining receptacles of the other half. As a result, a reliable seal along the perimeter of the upper and lower halves is purportedly attained. "This is a specially important for providing EMI shielding while the configuration is less complicated than the prior art." (Col 3, ll. 7-16).

Zurek *et al.* relates to a housing assembly for a miniature radio telephone which utilizes mechanical interlocking to eliminate conventional fastening devices for holding housing elements together. (Col. 1, ll. 5-12.) The housing utilizes a fastening system of cantilevered beam spring catches which are part of the front housing and which captivate the rear housing and internal circuit board. Specifically, the spring catches "hook" the rear housing and prevent its movement away from the front housing. The spring catches are

secured by an interlocking battery which locks the spring catches in place so that they remain hooked on the rear housing. (Col. 4, ll. 8-14.)

Argument

The Examiner's combination of *Fun et al.* and *Zurek et al.* fails to establish a *prima facie* showing of obviousness. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In *re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP §§ 2143 - 2143.03 for decisions pertinent to each of these criteria." MPEP §2142. In this case, the Examiner has failed to meet not just one of the criteria above, but all three.

1. No motivation to combine *Fun et al.* and *Zurek et al.*

The combination of *Fun et al.* and *Zurek et al.* is improper and is the result of hindsight rather than motivation within the references to combine them as is required. *Fun et al.* relates to the interconnection of two metal housing halves while *Zurek et al.* relates to the interconnection of two plastic housing halves. Neither reference suggests interconnecting a

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plastic and metal half together. To the contrary, *Fun et al.* specifically recites that metal halves are necessary to provide EMI shielding and that EMI shielding is desirable. (Col. 1, ll. 22-24 and col. 3, ll. 14-16.) Substituting a plastic half for a metal half would compromise the EMI shielding of the housing, and, thus, undermine an important aspect of the *Fun et al.* disclosure. It is well established that there can be no motivation to modify a particular reference if such a modification undermines a basic principle or purpose of the reference. (See MPEP §2143.01 p. 2100-99.)

Furthermore, the Examiner's reasoning that one would be motivated to modify the top panel of *Fun et al.* with a plastic panel as disclosed by *Zurek et al.* to improve shock resistance, lower weight, and decrease manufacturing costs is clearly contrived and not based in reality. Specifically, there is no reason to believe that a housing having a metal half and a plastic half is more shock resistant than one having simply two metal halves. Indeed, given the difficulties of interconnecting metal and plastic halves as discussed in the background section of the present invention (*see* Appl. p. 2, l. 25 - p. 3, l. 6), it seems likely that a housing having a metal half and a plastic half would be less robust than one having either two metal or two plastic halves. Additionally, there is no reason to believe that a housing having a plastic half would be necessarily lighter than one having a metal half since often times less metal is required than plastic to achieve the same structure integrity. Finally, the notion that using a hybrid of a plastic and metal half will somehow lower manufacturing costs ignores the prior art problems with joining the halves. The Examiner's reasoning essentially transforms the problem with the prior art as stated in the present invention to be a benefit of the prior art.

This is simply not the case. Accordingly, the motivation cited by the Examiner is not found in the cited references and is apparently contrived.

Since the references lack motivation for the combination as proposed by the Examiner, a *prima facie* case of obviousness has not been established. Accordingly, the rejection should be withdrawn and the claims allowed.

2. No reasonable expectation of success in the combination.

It is well established that to sustain a *prima facie* case of obviousness, the combination of references must have a likelihood of success. In the present case, however, the Examiner's combination of references provides little assurance of success. Specifically, the Examiner fails to address the problem of combining plastic panels with metal panels as set forth by Applicants. Rather, the Examiner simply proposes combining a plastic half and a metal half in a theoretical sense without any detail as to how the interconnection of the halves is effected. Such a theoretical approach lacks the necessary detail to ensure any degree of success. Accordingly, the rejection should be withdrawn and the claims allowed.

3. Combinations fails to teach or suggest all elements of claimed invention

Even if one accepts the combination of Fun *et al.* and Zurek *et al.*, the fact remains that the combination still fails to disclose all the elements of the claimed invention. Specifically, there is no indication that the barbs of the metal panel of Fun *et al.* are received in one or more cavities of the plastic half of Zurek *et al.*, and that the plastic panel of Zurek *et*

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al. at least partially envelops the barbs of the metal panel of *Fun et al.* to secure the two panels together. If half 303 of *Zurek et al.* is substituted for the top half 10 of *Fun et al.* as suggested by the Examiner, it is not clear how the barbs 261 would be enveloped by half 303. Indeed, rather than half 303 enveloping the tabs 217, the most probable configuration suggests that tabs 217 partially envelope half 303 of *Zurek et al.* to "hook" half 303 and secure it to the other half 316. This is contrary to the recited interconnection of the panels of the claimed invention. Additionally, there is no disclosure that a tab 217 is received in a cavity within half 303 as set forth in the claims. The interconnection between the plastic and metal panels is critical to the claimed invention and cannot be ignored. Since this interconnection is neither taught nor suggested by the combination of references suggested by the Examiner, the rejection should be withdrawn and the claims allowed.

In light of the remarks above, an early and favorable allowance is earnestly solicited.

Thank you.

Respectfully submitted,



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APPENDIX A

Marked-up Version of Claims Showing Changes Made

1. (amended) A card for insertion into a receiving slot of a host computer, said card comprising:
 - a circuit board;
 - a connector electrically connected to said circuit board and adapted for electrically connecting said circuit board to a host computer;
 - a housing having said circuit board mounted therein and configured to provide access to said connector, said housing comprising a metal panel interconnected to a plastic panel, said metal panel comprising a plurality of tabs with barbs thereon, said plastic panel having one or more cavities receiving said tabs; andwherein [the plastic of] said plastic panel at least partially envelops said barbs of said tabs to prevent withdrawal of said tabs from said one or more cavities and thereby interconnect said plastic and metal panels.

A:\RESPONSE.WPD

FACSIMILE COVER SHEET

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Re: U.S. Patent Application No. 09/678,519

Attorney Docket No.: 17498

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REMARKS:

Transmitted herewith is page 9 of the Response to the Office Action dated April 9, 2002.

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